



United States Environmental Protection Agency

One Congress Street, Suite 1100 (HBT)
Boston, MA 02114-2023

September 24, 2004

Mr. Fred Evans
Naval Facilities Engineering Division - North East
10 Industrial Highway, Code 1811/FE - Mail Stop 82
Lester, PA 19113-2090

Re: Draft, Phase II Screening Level Ecological Risk Assessment of IR Program Site 16
(Creosote Dip Tank and Fire Fighting Training Area), dated August 2004, at the former
Naval Construction Battalion Center (NCBC) Davisville, RI

Dear Mr. Evans:

Pursuant to § 7.6 of the Davisville Naval Construction Battalion Center Federal Facility Agreement dated March 23, 1992, as amended (FFA), the Environmental Protection Agency has reviewed the subject document and our comments are enclosed. Please evaluate the enclosed and provide responses within the time period required by § 7.6 (e) (2) FFA (45 days). If you have any questions with regard to this letter, please contact me at (617) 918-1384.

Sincerely,

A handwritten signature in black ink, appearing to read "Christine Williams".

Christine A.P. Williams, RPM
Federal Facilities Superfund Section

Enclosure

cc: Richard Gottlieb, RIDEM
Steve DiMattei, EPA (via e-mail only)
Marilyn Cohen, ToNK
Steven King, RIEDC
Kathleen Campbell, CDW (via e-mail only)
Kristen Alberti, GF (via-email only)
Jim Shultz, EA Engineering, Science and Technology

EPA comments on the Phase II SLERA-NCBC Site 16

GENERAL COMMENTS:

1. The Navy's interpretation that there is no apparent forensic correlation with the PAH compounds detected in the harbor and those in the soil at Site 16 in the area of the former creosote dipping tanks and therefore, the PAH compounds detected in the harbor are not related to past Site 16 operations is problematic. EPA does not concur with that assessment.

Although no detailed analysis was made by EPA it is not clear that a lack of forensic correlation of PAH compounds in Site 16 soils and Allen Harbor sediment implies no correlation of PAH compounds in Allen Harbor with past or present contribution from Site 16. The first concern is the limited number of Site 16 soil samples. Second, the Site 16 area clearly had a major creosote dipping operation that would potentially exceed PAH contribution to Allen Harbor compared to loss from creosote preserved wood pilings in the marina area as interpreted by the Navy. Third, it should be noted that while a chemical or finger print correlation was not made, the Site 16 samples (relatively few in number) were indicative of PAH compounds exposed and weathered in a relatively dry, aerobic soil environment. The harbor sediment samples were collected from a wet, likely anaerobic, marine environment. Therefore, any PAH compounds at those two locations may have undergone different physical, chemical, biological transformations with potentially significant alterations of their chemical structure.

Nonetheless, review of Figure 4-4, even with the reduced PAH concentrations (i.e. the "predicted" concentrations) the distribution of PAH concentrations does not follow a pattern that would suggest contribution primarily by any creosote preserved wood pilings in the Marina Area. The concentrations of PAH are clearly highest nearest the shore line and in particular, Site 16. Inspection of sediment sample PAH concentrations for locations immediately adjacent to the Marina Area also shows that while there may be locations with elevated PAH compounds there are also many locations with significantly lower PAH compounds. If creosote preserved wood pilings were the predominant contributor of PAH compounds to Allen Harbor, it would be expected that the concentrations of PAH would be greatest around all of the Marina Area docks. Figure 4-4 shows that sediment around the dock to the north is markedly lower in PAH concentrations than the sediment for the south dock, which is adjacent to the Site 16 shoreline.

The document also states that while the PAH concentrations at Allen Harbor are higher than the background Reference Site locations this is due to lack of circulation of the inner harbor. This statement is subjective and not supported. Nonetheless, review of the background locations shows that this does not appear to be the case. In particular,

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Reference Site #3, which has the highest background PAH concentrations of all three reference areas, appears to be relatively sheltered thereby subject to potentially "limiting circulation." Additionally, this site (Fishing Cove) is in an area that is relatively highly developed with roads and housing adjacent that would potentially contribute PAH compounds. Yet, the average concentrations of PAH in the five reference samples is approximately 5.5 milligrams per kilogram (mg/Kg) (unadjusted screening concentrations) while the Allen Harbor sediment have PAH concentrations that generally range from approximately 30 to 45 mg/Kg (unadjusted screening concentrations) in the Inner Area adjacent to Site 16. The Marina area PAH concentrations ranged from near 40 mg/Kg for the south docks immediately adjacent to the Site 16 shoreline to approximately 10 to 20 mg/Kg for the northern docks further away from the Site 16 shoreline. In the Outer Area of the Harbor, the unadjusted PAH concentrations are approximately 10 mg/Kg.

2. Based upon the data presented in this report, EPA does not concur that it has been demonstrated that Site 16 has not contributed significantly to PAH concentrations in Allen Harbor. Also, the presence of PAH compounds in the harbor does not appear to be primarily due to the Marina Area pilings. Further, while storm water runoff would contribute PAH to the harbor, the highest concentrations of PAH in sediment are along the Site 16 shoreline away from the expected flow path for discharging storm water through the storm water system.
3. The SLERA format generally followed that of the QAPP and adhered to EPA guidance. The selection of receptors, assessment and measurement endpoints, COPC screening, exposure estimation, and risk characterization were all conducted appropriately except as noted in the following comments. The sediment ecological benchmarks, exposure assumptions, toxicity values, etc. are acceptable except as noted in the following comments. The HQ calculations were conducted accurately, although some of the input parameters need to be reviewed or more fully explained. The SLERA concludes that risk to mammals and birds represented by the raccoon and risk to benthic invertebrates is minimal. Based on the calculated HQs, this conclusion is probably valid. Full acceptance of this conclusion is contingent on acceptable resolution of the following comments.
4. The high HQs for benthic invertebrates for gamma-chlordane (12), endrin ketone (48), and dieldrin (222) should be discussed. While the SLERA concludes that risk to ecological receptors in Allen Harbor is not significant, these significant HQs remain unexplained. Without providing rationale for why the HQ for dieldrin especially does not equate to site risk, the conclusion of no significant risk is not supported. Please also provide a table showing the comparison between site data and NOAA ER-M benchmarks.
5. The Step 2 risk calculations assumed bioaccumulation factors (BAF) of 1.0 for all COPC.

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While this is a conservative approach for most chemicals, it is not the most conservative approach for chemicals with BAF greater than one (e.g., zinc, PCBs, most pesticides). To be adequately protective and to ensure that all COPC are carried through as needed to the Step 3a evaluation, the Step 2 risk calculations should be conducted with the actual BAF or a value of 1.0, whichever is higher.

6. The Rapid Sediment Characterization (RSC) data presented in Table 2-1 are for copper and zinc only, with a small number of results for nickel. While the RSC discussions in Section 2.3 and Section 4.1 indicate that lead was included in the screening evaluation, no lead data are evident in Table 2-1. Please clarify why the data were not included in the table. Without the lead data, the use of the RSC results to choose the locations for full analytical analyses relies entirely on copper and zinc RSC data. Using data from only these two metals lessens the certainty that inorganics in general have been adequately covered. Please discuss the confidence, or lack thereof, in the likelihood that areas with the most elevated concentrations of arsenic, copper, mercury, etc. have been evaluated. This comment does not necessarily preclude acceptance of sample coverage, particularly in the inner harbor, where it is noted that the coverage of sediment samples for full analysis is probably adequate. A discussion of the limitations of the RSC program can be included in the Uncertainties.

SPECIFIC COMMENTS:

7. Table 2-1 - It appears that the header for "lead results" has been misidentified. The third column from the right is listed as "Q", but I believe that this column is actually the lead results. Please clarify.
8. Table 5-3 - It is noted that the sediment concentration of cis-1,2-DCE is 880 ppb at location AH-47. This concentration is more than an order of magnitude higher than the highest sediment concentration found for this particular chemical at the NCBC NPL Calf Pasture Point (OU-8) site 7 area of concern (31 ppb). Currently the discharge location of the plume is being determined at OU-8 due to a possible risk to swimmers and waders. What is the Navy's plan for determining the discharge location of the OU-9, (Creosote Dip Tank and Fire Fighting Training Area-site 16) TCE plume and it's associated risk to human health and the environment?
9. Table 5-9. Please clarify how the invertebrate and vegetation concentrations were calculated. Apparently, the mean dry weight sediment concentrations were multiplied by the BAFs and a dry weight to wet weight conversion factor. Using this method, some of the values could not be replicated by the reviewer. Please clarify the % solids used for both invertebrates and plants. For BAFs which were based on a regression, were the

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values for mean sediment concentrations different than those presented in Table 5-6 and 5-7? Please provide the extra information to this table to more clearly explain how the concentrations were derived.

10. Table 5-12 and 5-13. The NOAEL and LOAEL TRVs for mercury do not match those listed in Tables 5-10 and 5-11. Please review and clarify as needed. If the TRVs for methylmercury were used, please indicate this.
11. Table 5-15 and 5-16. The “Dose” column presents results in mg/kg/day (ww). As the dose is not presented on a wet or dry weight basis, but on a body weight basis, the “ww” designation is confusing and should be deleted.
12. Table 5-18. Please add the units for the UCLM95 and the benchmarks.